



Working Paper 07-78
Economic Series 47
November 2007

Departamento de Economía
Universidad Carlos III de Madrid
Calle Madrid, 126
28903 Getafe (Spain)
Fax (34) 91 6249875

Education and Political Behaviour. Evidence from the Catalan Linguistic Reform^{*}

Oriol Aspachs-Bracons[†], Irma Clots-Figueras[‡], Paolo Masella[§]

Abstract

This paper studies the relationship between schooling and political behaviour in ethnically divided societies. It draws on survey data from Catalonia to investigate how the introduction in 1983 of a bilingual education system affects political behaviour. Using within and between cohort variation in exposure to Catalan language at school, we find that individuals who have experienced greater exposure to teaching in Catalan are more likely to declare to have voted in 1999 regional elections and to have chosen a Catalanist party.

^{*} The authors thank Robin Burgess, Luigi Guiso, Ramon Marimon and seminar participants at the London School of Economics and at Universidad Carlos III de Madrid. Irma Clots-Figueras gratefully acknowledges financial support from the MEC grant SEJ2004-07861.

[†] LSE and FMG

[‡] Universidad Carlos III de Madrid

[§] Sticerd and LSE

1 Introduction

Many social scientists have studied extensively the role of education and how schooling can create different kinds of private and social benefits. In particular, the economics literature has established a causal link between education and private earnings; and more recently, some scholars (Chiswick et al. 2006) have argued that schooling can increase the earnings of immigrants through its effect on language proficiency.

In addition, both the political science and the economic literature have investigated the link between education and political behavior. In this respect, in 1978, Samuel Bowles argued that the school system has been instrumental to the interests of the elite and may have helped the consolidation of the capitalist system. However, there is still not much evidence on the nature of the channels through which education can affect the political outcomes and the causal link has only recently been carefully studied. Using compulsory education laws as instruments, Milligan et al. (2004) found a robust positive relationship between education and turnout for the United States. However, this was not the case for the United Kingdom.

In this paper, we focus on the relationship between schooling and political behavior of citizens in ethnically divided societies. We explore how a linguistic reform that took place in Catalonia affected turnout and party choice. In 1983, the Catalan education system became bilingual and the law established the predominant use of Catalan in primary and secondary schools. Using survey data from the “Centro de Investigaciones Sociológicas”, we study the effect of such a reform on the political behavior of Catalan citizens.

Our empirical argument relies on within and between cohort variation in exposure to Catalan language at school. Between cohorts, the 1983 educational reform affected the younger cohorts (who were more exposed to the language) more than the older generations. Within a given cohort, the exposure to Catalan varies according to the number of years for which a student remains in education, as some students leave school earlier than others.

We find that individuals who experienced greater exposure to teaching in Catalan are more likely to declare that they have voted in the 1999 regional election and have chosen a party with a Catalanist (i.e. Catalan regionalist)

platform. Thus, the introduction of a bilingual education system, a standard example of a multicultural policy in an ethnically divided society, increased the salience of the ethnic issue in the Catalan society and helped the consolidation of a political system organized along ethnic lines. Several robustness checks allow us to reject the existence of education specific cohort trends for political behavior.

In Aspachs, Clots-Figueras and Masella(2007), individuals who experienced greater exposure to the language reform are more likely to say that they feel more Catalan than Spanish. Interestingly, identity could be the link between the linguistic reform and political choices.

This paper is related to several strands of literature. First, there is the literature that studies the relationship between education and individual political choices (see Merlo 2006 for a review of the topic) and, in particular, to that which focuses on the determinants of turnout and political behavior (Milligan et al. (2004)).

Second, there is a connection with the early political science literature that analyzes the effect of multicultural policies and nation building policies on individual choices. If we interpret the reform as an example of a nation building policy within Catalonia, where individuals living in Catalonia who were born elsewhere, or whose parents are not of Catalan origins are the relevant minority, we find that the nation building policies foster civic duties (turnout) and an attachment to nationalistic parties. To the best of our knowledge, this is the first paper to analyze how a linguistic educational reform affects political behavior in an ethnically divided society.

The paper is organized as follows. Section 2 provides a brief description of the reform and more generally of the institutional setting in Catalonia after 1983 and the data used. Section 3 describes our identification strategy, while Section 4 presents the basic empirical evidence, discussing the role of individual origin and the link between reform, ethnic identity and political decisions. Section 5 provides some robustness checks and Section 6 presents the conclusions.

2 Background

2.1 Institutional Setting

The democratization process that occurred in Spain during the late seventies, after the end of Franco's dictatorship, led to the approval of a Constitution that defined a decentralized government structure. As basic democratic rights were recognized, the old political parties, which had existed in secrecy during the dictatorship, were legalized and new political parties also emerged.

From the five parties in the Catalan Parliament at the time of the survey, one was created during the transition: *Convergència i Unió* (CIU), this party that was in power from 1980 to 2003. The other four had existed, with their own variations, prior to the dictatorship: *Partit dels Socialistes de Catalunya* (PSC), *Esquerra Republicana de Catalunya* (ERC), *Partido Popular* (PP), and *Iniciativa per Catalunya Verds* (ICV). Three of these are Catalan-only parties, CIU, ERC and ICV, in the sense that they only present candidates in Catalonia, while the other two exist throughout the Spanish territory. In our wider classification of the Catalan and non-Catalan parties, we consider as Catalan all parties that have in their programmes the approval of a law that would give Catalonia the right to self-determination. These parties are CIU, ERC and ICV. Then we use a narrower classification of the Catalan parties, in which we include only those parties that are in favour of an independent Catalonia: CIU and ERC.

After democracy, one of the main concerns of the new Catalan administration was the promotion of Catalan in education. The main Educational law that was undertaken by the Catalan Government was the "General Directory of Linguistic Policy (1983)" which introduced Catalan (together with Spanish) as the medium of instruction in all the schools in Catalonia. This reform was approved by a wide majority when CIU was in power and allowed the educational system in Catalonia to become bilingual.

The law stated that primary education could not be completed without proving proficiency of the official languages of Catalonia (Catalan and Spanish). In addition it made clear that the Catalan Language, as the own language of Catalonia, would also be the language used in the education sys-

tem. Moreover, according to this law, the language used in the education system could never separate the alumni due to linguistic differences. Thus all students would be exposed to Catalan language.

2.2 Data Description

The empirical analysis draws on survey data provided by the "Centro de Investigaciones Sociologicas" in 2001. In this survey, which is representative for Catalonia, individuals were asked about their age, education, origin, origin of their parents, time of arrival in Catalonia and questions about their use of Catalan as well as some ideological questions: their national identity, the party they voted for in the 1999 elections and whether they voted at all.

The linguistic reform was first implemented the 1983-84 academic year in every school in Catalonia. In order to identify the cohorts who are likely to be treated, we assume that all of the respondents started their education at the age of 6. As a result, since in Spain primary education lasts for 8 years and secondary education for 4 years, a respondent born in 1966 with secondary education received one year of treatment. The 1966-81¹ cohorts have been affected by the reform; thus, a natural comparison group are the cohorts born between 1950-1965.

Intensity of treatment varies across cohorts and level of education. Individuals who are younger (born after 1966) and individuals with more years of education will have been exposed to more years of teaching in Catalan. If there is a link between language policy and voting behavior, the reform will change voting behavior for those cohorts who received more treatment. We expect that individuals who experienced greater exposure to the reform will feel a greater identification with Catalonia and, as a result, will be more likely to vote in the regional elections and to choose Catalanist parties. A preliminary look at the data shows that this is indeed the case.

In Figure 1, we plot the fraction of individuals that voted in the elections by cohort and level of education (we distinguish between respondents with secondary education and those without). Even if the younger individuals

¹ Although we have data for people born in 1982 and 1983, these individuals could not vote in the 1999 elections as they were under 18, so we do not include them in the sample.

vote less frequently, this negative trend is attenuated for individuals who were more affected by the Catalan reform: those born after 1966 who have secondary education. Figure 2 illustrates the difference between these two lines, that is, the within-cohort variation. For cohorts who were not affected by the reform, the line fluctuates around zero, while the difference starts to increase for cohorts born after 1966.

Figure 3 shows the fraction of voters who voted for Catalanist parties, by cohort and education. This figure shows a large increase in the proportion of younger and more educated voters who voted for Catalanist parties, while for less educated voters there is a positive effect, but less strong. Figure 4 plots the difference between these two lines and shows the within-cohort variation for each cohort. As expected, the difference is larger for cohorts born after 1966.

Table 1 reports descriptive statistics for the main variables employed in this study. It shows descriptive statistics for all individuals, and then for individuals with and without secondary education. These groups are then divided among the different samples used in the regressions.

3 Empirical strategy

Students' exposure to Catalan language varies according to year of birth and years of education. Using a similar identification strategy to Angrist et al (2006), we obtain differences-in-differences estimates using the equation

$$y_{ijm} = \alpha + \beta L_{ijm} + \gamma_j + \delta_m + X_{ijm}\mu + \varepsilon_{ijm} \quad (1)$$

Where L_{ijm} is the length of exposure to teaching in Catalan. γ_j is a cohort dummy, δ_m is a dummy for education background and X_{ijm} is a vector of the individual-level control variables, including gender, individual's origin, parents' origin and province dummies².

We analyze the effect of the linguistic reform on political behavior, namely turnout and party preferences. As a consequence, we use several dependent

²We exclude from the sample any migrants who received some education outside Catalonia.

variables: y_{ijm} , indicates whether or not individual i , from cohort j and with m years of schooling:

(1) Declares to have voted in the 1999 regional election. This specification checks if the linguistic reform stimulated turnout to the regional elections.

(2) Declares to have voted for a Catalanist party in the 1999 regional election (we restrict the sample only to people who declared to have voted in that election). As a first step we consider IC, ERC and CIU as Catalanist parties, then look only at ERC and CIU. As a last step, we consider only CIU. This specification checks whether the linguistic reform increased the share of the votes for Catalanist parties in the regional elections.

(3) Declares to have voted for a Catalanist party in the 1999 regional election (we do not restrict the sample). As in point (2), we first consider IC, ERC and CIU as Catalanist parties, then we look only at ERC and CIU and as a last step, we consider only CIU. This specification checks if the linguistic reform increased the total number of votes received by Catalanist parties in the Catalan regional election.

The identification strategy relies on the fact that there is no other variable that affects the political behavior of the cohort-years of education groups. We run this specification, first as a linear regression and then as a logit, due to the binomial nature of the dependent variable³. Robust standard errors are clustered at the cohort-years of education level, to control for the fact that observations in a given cohort-years of education group may be correlated.

The second econometric specification to be tested is very similar to the first one. However the dependent variable can assume three different values. This time y_{ijm} indicates whether individual i , from cohort j and with m years of schooling declared to have (i) voted for a Catalanist party (ii) voted for a non-Catalanist party (iii) abstained. We run this specification first as a multinomial logit; however, the multinomial logit assumes the independence of irrelevant alternatives. We then run a multinomial probit assuming the error terms to be independent, and as a last step we run it as a multinomial probit but relaxing the assumption of independence of the error terms⁴.

³The results for probit are very similar and available on request.

⁴We use the `asmprobit` command in STATA.

4 Results

4.1 Difference-in-Difference Estimates

Table 2 reports estimates for Equation (1) using as dependent variable the probability of voting during the regional election of 1999. In Columns 1 and 2, we show estimates when we only control for years of education and year of birth dummies, for the OLS and the logit specifications, respectively. OLS estimates show a positive and significant coefficient, suggesting that an increase in exposure to the reform increases the probability that an individual votes. The logit results go in the same direction and are significant. In Columns 3 and 4, we add province dummies, controls for gender, family and individual origin. Coefficients are still positive and significant. The results suggest that those who received Catalan-intensive instruction tend to be significantly more likely to vote; in fact, an extra year of education in Catalan increases the likelihood that the respondent declared to have voted by 4.5%. The probability of voting is also correlated with the individual origin and with the origin of the parents of the interviewed. We classified respondents into 4 categories: 1) individuals who were not born in Catalonia 2) individuals who were born in Catalonia but whose parents were not 3) individuals who were born in Catalonia but with only one parent born in Catalonia 4) individuals who were born in Catalonia whose parents were both born in Catalonia. We find that the probability of voting is highest among respondents with Catalan origins who have parents with Catalan origins.

Tables 3 and 4 report estimates for equation (1) using as dependent variable the probability of voting for a Catalanist party during the regional elections in 1999, when we restrict the sample only to people who declared to have voted in that election (Table 3) and when we do not restrict the sample (Table 4). In Columns 1 and 2 of both the tables we show estimates for the OLS and the logit specifications, when we only control for years of education and year of birth fixed effects and when we classify IC, ERC and CIU as Catalanist parties. In Columns 3 and 4 of both tables we consider only CIU and ERC as Catalanist parties. In Columns 5 and 6 of both the tables we focus only on CIU. OLS estimates show a positive and significant coefficient,

suggesting that an increase in exposure to the reform increases the probability that an individual will vote for a Catalanist party. The logit results go in the same direction and are significant. In Columns 7-12 of both tables we add province dummies, controls for family and individual origin. The coefficients are still positive and significant. Results suggest that those who received Catalan-intensive instruction tend to be significantly more likely to vote for a Catalanist party, both if we consider the sample of voters or the total sample. Furthermore, the results clearly show that most of the effects we find in Tables 3 and 4 come from the increase in the probability of choosing CIU. The probability of voting for a Catalanist party is also correlated, as predictable, with individual origin and with the origins of the parents of the interviewed. We find that probability of voting is highest among respondents with Catalan origins and with parents who have Catalan origins. As shown in Column 8 of Table 3 (restricted sample), an increase from 4 years of treatment (the average amount of treatment) to 8 years of treatment (the average amount of treatment plus one standard deviation) would increase the likelihood that the respondent declared to have voted for a party with Catalan affiliation by almost 20%. Column 8 of Table 4 (unrestricted sample) shows that an increase from 4 to 8 years of treatment would increase the likelihood that the respondent declared to have voted a party with Catalan affiliation by 27%.

So far results show that the educational language reform fostered attachment to local institutions, as individuals more affected by the reform are more likely to vote in regional elections. In addition, the reform increased the salience of the ethnic issue, as individuals more affected by the reform are more likely to vote for Catalanist parties.

As a final step, we try to understand the effect of the reform on the decision of voting for a Catalanist party, voting for a non-Catalanist party or not voting. We then show results using the second econometric specification mentioned in the previous section. The dependent variable is now a variable that can assume three different values depending on whether the respondent (i) voted for a Catalanist party (ii) voted for a non Catalanist party (iii) abstained. For this specification we consider CIU, ERC and IC as Catalanist parties. Columns 1-3 of Table 5 report results when we run this specification

as multinomial logit, columns 4-6 when we run it as a multinomial probit, but assuming the error terms to be independent. Columns 7-9 report the results when we run it as multinomial probit but removing the assumption of the independence of the error term. The picture the table shows is, however, quite homogeneous. We observe that the reform caused a significant decline in abstention, a decline (but not always significant at standard level, i.e. significant at 10 per cent level only with the multinomial logit specification) in voting for a non-Catalanist party and also a contemporaneous and significant increase in voting for a Catalanist party.

Results in Columns 7-9 show how an increase in years of Catalan instruction from 4 to 8 increases the likelihood that the respondent declared to have voted for a Catalanist party by 25% and decreases the likelihood that the respondent declared to have voted for a non-Catalanist party by 16%. However, since the decline in the amount of votes for non Catalanist parties is not significant in every specification, data do not allow us to distinguish between two different patterns of voting behavior:

- 1) a simple switch from abstention to voting for a Catalanist party
- 2) a more complex scenario in which
 - (i) on the one hand, the reform contributed to a general rise in electoral participation and, then, as a result, led to a switch from abstention to voting for both Catalanist and non-Catalanist parties
 - (ii) but, on the other hand the reform increased individual preferences for a Catalanist party and, as a result, led to a switch from voting for a non-Catalanist party to a Catalanist party.

4.2 Heterogenous effects

In this section we study whether the effect of the reform was homogeneously spread across the population. As the reform could have different effects according to the individuals' origin, we interact our intensity measure with the 4 origin dummies we created. Table 6 shows that the effect of the reform on both turnout and preference for a Catalanist party is positive not only for those respondents with Catalan origin and whose parents were both born in Catalonia, but also for individuals born in Catalonia but whose parents were

not, for individuals born in Catalonia with only one parent with Catalan origin and for individuals who were not born in Catalonia.

Figures 5-7 are useful to interpret the logit coefficients, as they show how the probability of voting and voting for an ethnic party (for both samples) changes with the reform for the different origin groups. As is shown in these figures, while political choices vary widely depending on origin among individuals with no treatment, origin plays almost no role among individuals with full treatment. In fact, all figures show that the reform made individuals from different origins converge in their answers.

Since, as already mentioned in the introduction, we can interpret the reform as an example of a nation building policy within Catalonia, where individuals living in Catalonia who were born elsewhere, or whose parents do not have Catalan origins are the relevant minority, we conclude that nation building policies foster civic duties (turnout) and attachment to nationalistic parties.

5 Robustness

In this section we perform several robustness checks on the main specification. First we show that our results are not driven by education-specific cohort trends. Then we restrict the sample and conduct some extra checks to control for the fact that the reform could have encouraged migration in and out of Catalonia.

5.1 Trends and Falsification Exercise

Estimates in Tables 2, 3 and 4, which show how intensive Catalan instruction affects political behavior, may be confounded by education-specific cohort trends for turnout and political preferences. This would happen if parents transmit voting preferences to their children and parents who vote more in elections and vote for Catalanist parties also give more education to their children.

As a formal falsification exercise, we run the specification proposed by Equation (1) on those cohorts unaffected by the reform, namely cohorts 1934

to 1965. We give cohorts 1950 to 1965 a pseudo treatment that consists of the intensity of the reform received by individuals with the same years of education but born 16 years later. Columns 1-6 of panel A in Table 7 report the results of this exercise. We adopt both an ordinary least squares and a logit specification. The coefficient of the pseudo treatment variable is never significant, negative and very small when we consider turnout as the dependent variable and positive but sufficiently small when we use as dependent variable whether or not the respondent declared to have voted for a Catalanist (IC, ERC and CIU) party in the 1999 regional election (both with the sample restricted only to people who declared to have voted in that election and with the unrestricted sample).

In addition, in order to correct the estimates in Tables 2-4 for education-cohort trends, we perform a triple differences-type of analysis similar to that of Angrist et al (2006), using cohorts born between 1921 and 1980. The effects of interest are estimated using the following equation:

$$y_{ijm} = \alpha + \beta L_{ijm} + \theta l_{ijm} + \gamma_j + \delta_m + X_{ijm}\mu + \varepsilon_{ijm} \quad (2)$$

where L_{ijm} is a term that captures real exposure to teaching in Catalan, while l_{ijm} captures spurious effects.

L_{ijm} are the years of real treatment for cohorts 1966-1980; while l_{ijm} equals years of pseudo treatment for cohorts 1936-1950 (where now the pseudo-treatment consists of the intensity of the reform received by individuals with the same years of education but born 30 years later) and years of real treatment for cohorts 1966-1980⁵. β are the triple difference estimates, i.e. the treatment effects from the real experiment net of the pseudo treatment effects estimated using cohorts 1921-1950. Columns 7-12 of panel A in Table 9 report the results of this specification. Triple difference estimates are positive and significant, while the coefficient that would be capturing spurious trends is negative and not significant. Both exercises are reassuring, as they may indicate that our results are not capturing the effect of an education-specific cohort trend.

⁵Due to lack of data about very old cohorts we could not use a larger number of cohorts.

6 Conclusions

In ethnically divided societies, education can affect political behavior through the language used for teaching. In particular, the language of instruction used can increase the salience of the ethnic issue. This paper presents evidence of a positive effect of the educational reform, whereby the Catalan education system became bilingual, on turnout and on the likelihood of choosing a party with a Catalanist nature.

References

- Akerlof, G.A and Kranton, R.E (2000). "Economics and Identity". *Quarterly Journal of Economics*, 115:715-753.
- Bisin A and T. Verdier (2000) "The Economic of Cultural Transmission and the Dynamics of Preferences" *Journal of Economic Theory* 97, 298-319
- Bénabou, R. and Tirole, J. 2007. "Identity, Dignity and Taboos: Beliefs as Assets," *CEPR Discussion Papers 6123, C.E.P.R. Discussion Papers*
- Bowles, S (1978) "Capitalist Development and Educational Structure" *World development*, 6, 783-796.
- Chiswick, B and Miller, P (1999). "Language skills and earnings among legalized aliens" *Journal of Population Economics*, 1, 12
- Merlo, A (2007) "Whither Political Economy? Theories, Facts and Issues", in R. Blundell, W. Newey and T. Persson (eds.), *Advances in Economics and Econometrics, Theory and Applications: Ninth World Congress of the Econometric Society*, Cambridge: Cambridge University Press.
- Milligan, K. , Moretti, E. and Oreopoulos P. (2004) "Does Education Improve Citizenship? Evidence from the United States and the United Kingdom" *Journal of Political Economy* 88, 1667-1695

Figure 1: Participation rate by cohort and level of education

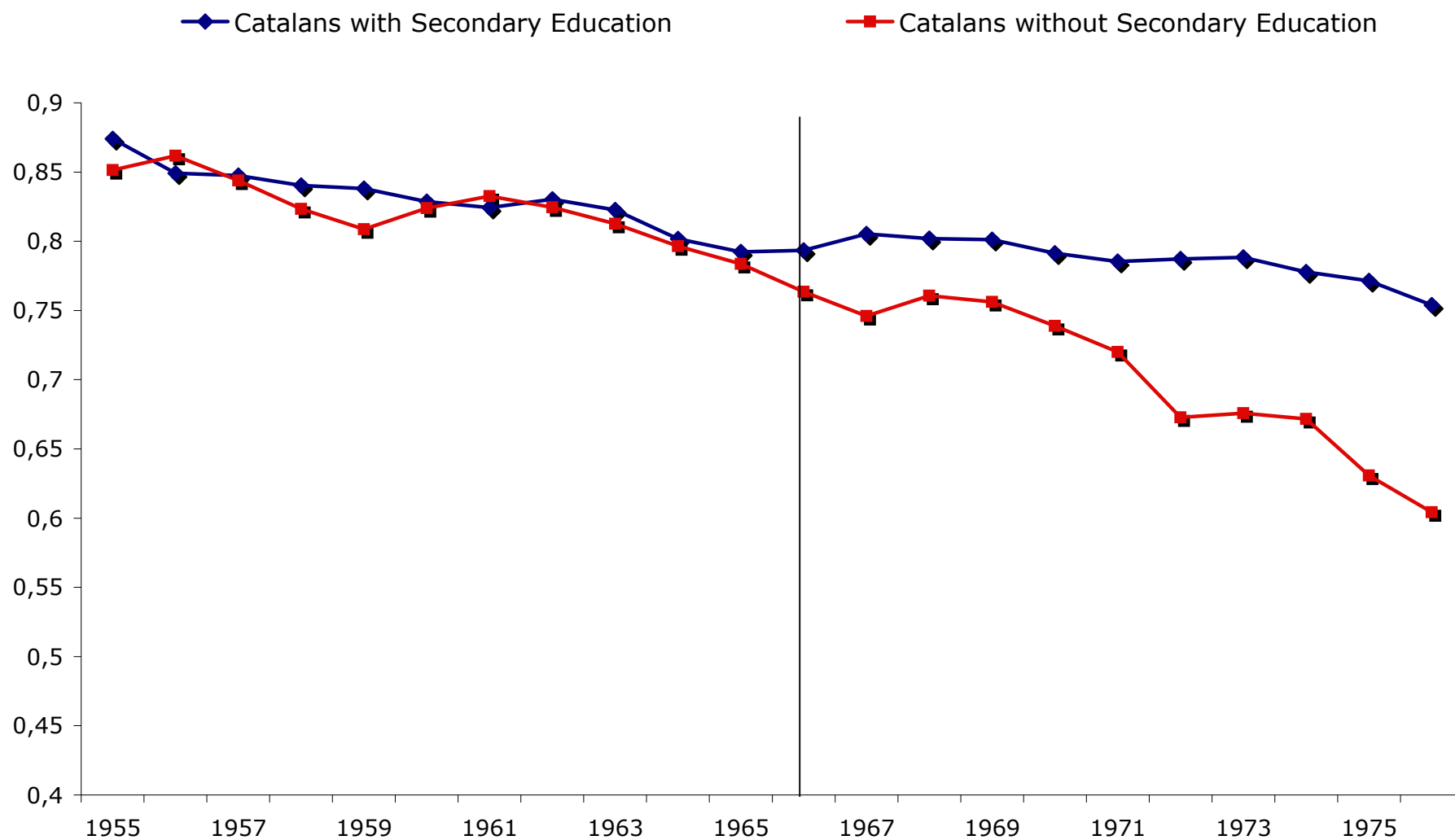


Figure 2: Effect of the reform on the participation rate by cohort

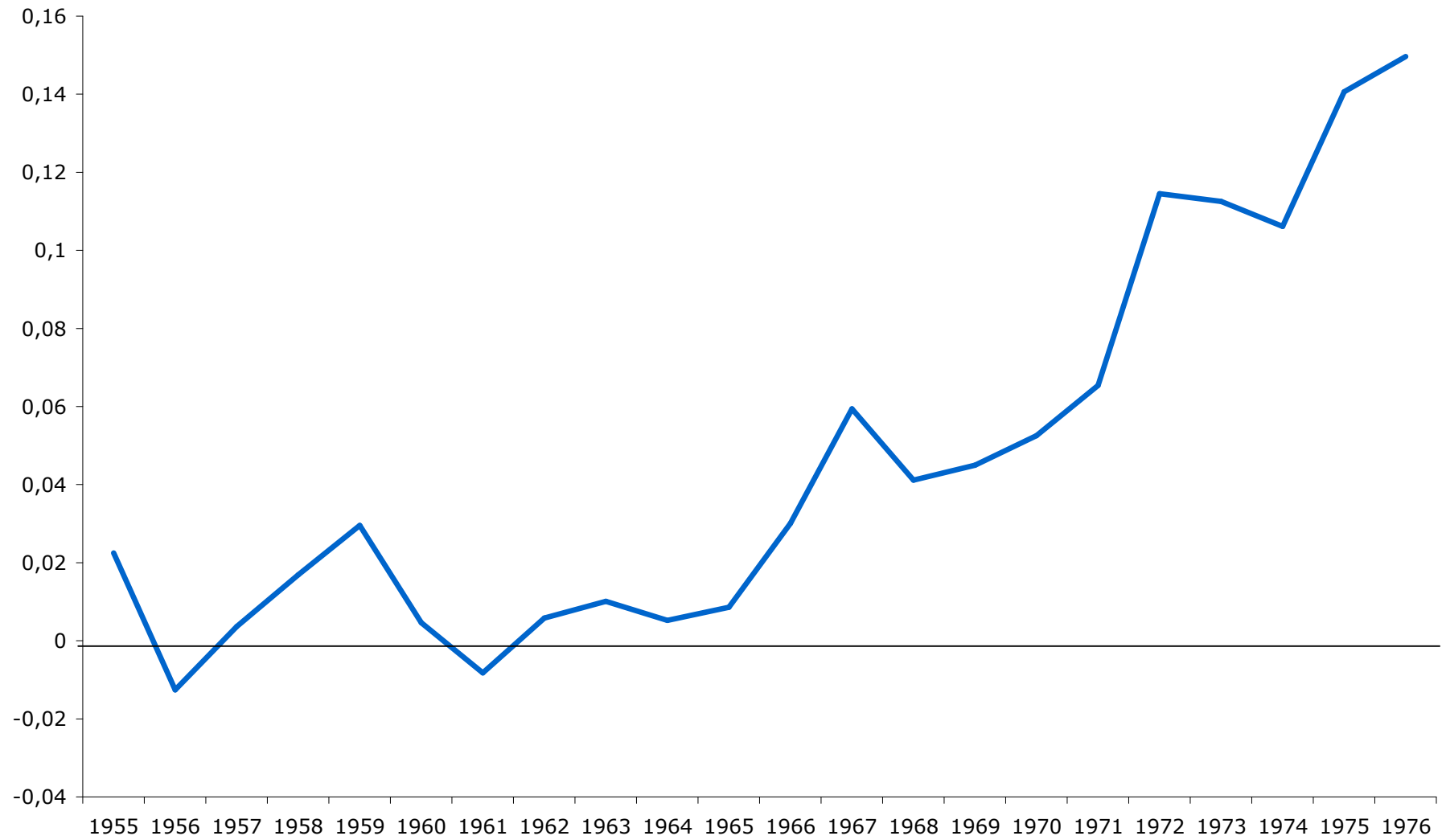


Figure 3: Ethnic Voting by cohorts and level of education

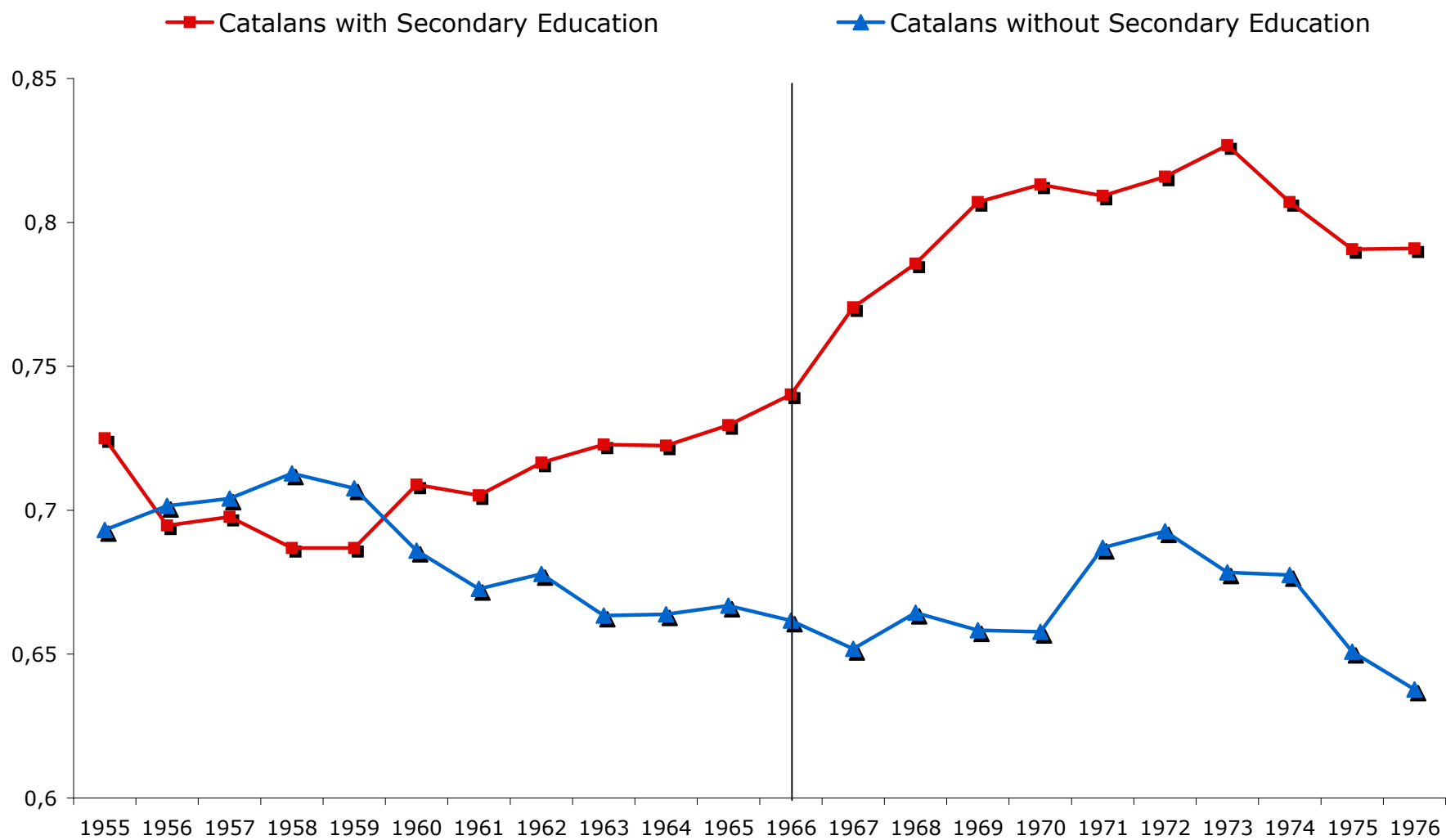


Figure 4: Effect of the reform on Ethnic Voting by cohort

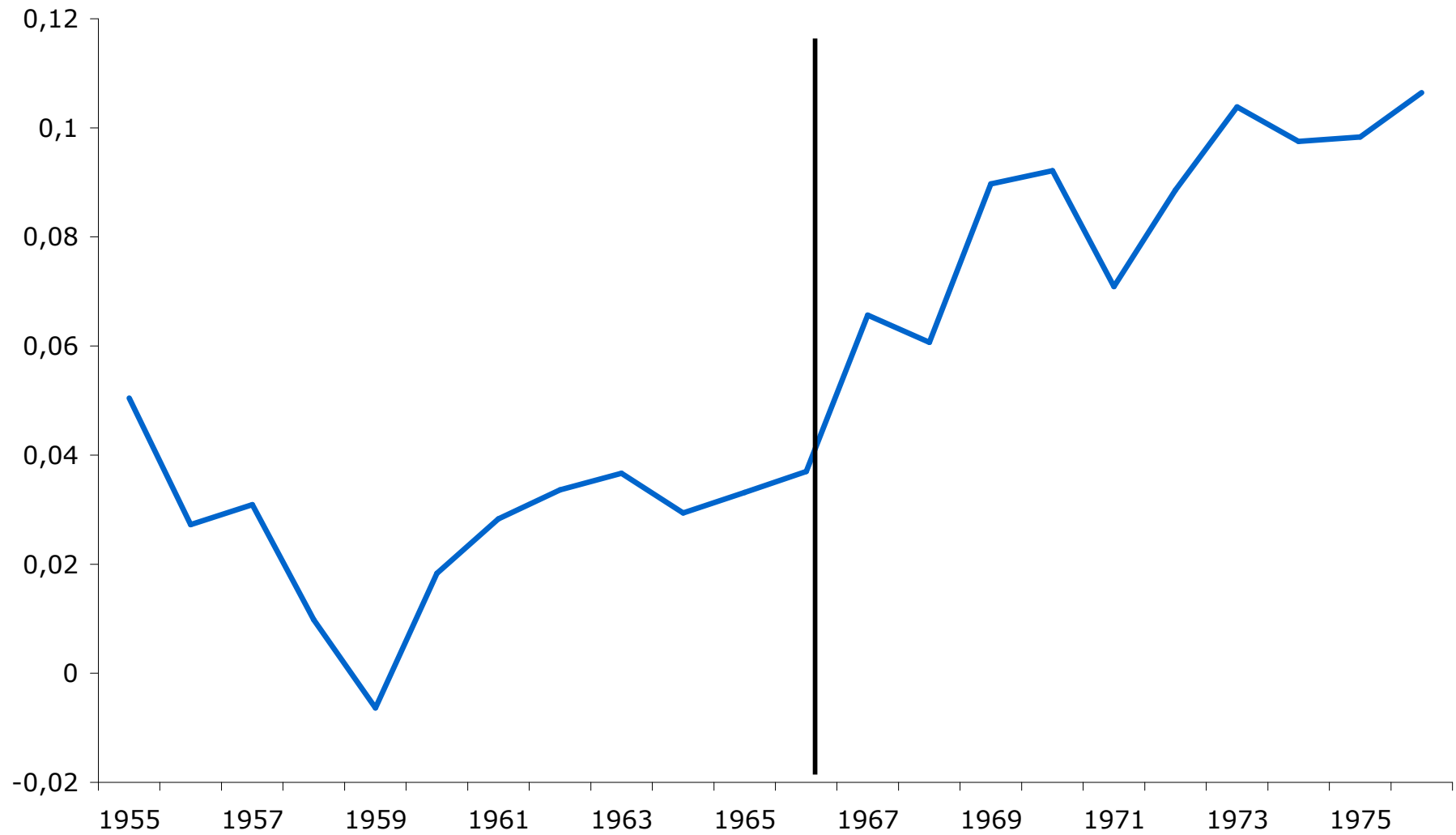


Table 1

		Cohorts (total sample)			Cohorts (with sec. edu)			Cohorts (without sec. edu)		
		1950-81	1950-65	1966-81	1950-81	1950-65	1966-81	1950-81	1950-65	1966-81
Years of Education	Average	10,38	9,97	10,67	12	12	12	8.46	8.27	8.65
	St. Dev.	1,88	1,99	1,74	0	0	0	0.99	0.98	0.97
	Observations	1349	565	784	697	241	456	652	324	328
Cat. Origin, Cat. Family	Average	0,43	0,46	0,40	0.49	0.56	0.45	0.35	0.38	0.32
	St. Dev.	0,49	0,49	0,49	0.5	0.49	0.49	0.47	0.48	0.46
	Observations	1349	565	784	697	241	456	652	324	328
Cat. Origin, mixed Family	Average	0,17	0,14	0,19	0.17	0.14	0.19	0.17	0.14	0.19
	St. Dev.	0,38	0,35	0,39	0.38	0.35	0.39	0.37	0.35	0.4
	Observations	1349	565	784	697	241	456	652	324	328
Cat. Origin, no Cat. Family	Average	0,28	0,21	0,32	0.24	0.16	0.28	0.32	0.25	0.39
	St. Dev.	0,44	0,41	0,46	0.43	0.37	0.45	0.46	0.43	0.48
	Observations	1349	565	784	697	241	456	652	324	328
No Catalan Origin	Average	0,11	0,17	0,06	0.08	0.13	0.05	0.14	0.2	0.08
	St. Dev.	0,31	0,37	0,25	0.27	0.33	0.23	0.35	0.4	0.27
	Observations	1349	565	784	697	241	456	652	324	328
Voting	Average	0,77	0,83	0,72	0.79	0.84	0.77	0.74	0.83	0.65
	St. Dev.	0,41	0,36	0,44	0.40	0.36	0.41	0.43	0.37	0.47
	Observations	1248	528	720	642	223	419	606	305	301
Catalan voting (CIU+ERC+IC)	Average	0,50	0,52	0,48	0.56	0.57	0.55	0.42	0.48	0.37
	St. Dev.	0,50	0,49	0,50	0.49	0.49	0.49	0.49	0.5	0.48
	Observations	1248	528	720	642	223	419	606	305	301
Catalan voting (CIU+ERC)	Average	0,44	0,47	0,42	0.49	0.49	0.48	0.39	0.45	0.33
	St. Dev.	0,19	0,49	0,49	0.5	0.5	0.5	0.48	0.49	0.47
	Observations	1248	528	720	642	223	419	606	305	301
Catalan voting (CIU)	Average	0,31	0,33	0,29	0.31	0.3	0.31	0.3	0.35	0.25
	St. Dev.	0,46	0,47	0,45	0.46	0.46	0.46	0.46	0.47	0.43
	Observations	1248	528	720	642	223	419	606	305	301
Catalan voting (CIU+ERC+IC)--only voters	Average	0,66	0,63	0,68	0.71	0.68	0.73	0.59	0.58	0.59
	St. Dev.	0,47	0,48	0,46	0.45	0.46	0.43	0.49	0.49	0.49
	Observations	941	439	502	503	190	313	438	249	189
Catalan voting (CIU+ERC)--only voters	Average	0,58	0,57	0,60	0.62	0.59	0.64	0.54	0.55	0.53
	St. Dev.	0,49	0,49	0,48	0.48	0.49	0.48	0.49	0.49	0.5
	Observations	941	439	502	503	190	313	438	249	189
Catalan voting (CIU)--only voters	Average	0,41	0,40	0,41	0.4	0.36	0.42	0.42	0.43	0.41
	St. Dev.	0,49	0,49	0,49	0.49	0.18	0.49	0.49	0.49	0.49
	Observations	941	439	502	503	190	313	438	249	189
Language at home	Average	0,44	0,47	0,41	0.5	0.54	0.47	0.36	0.42	0.31
	St. Dev.	0,49	0,49	0,49	0.5	0.49	0.49	0.48	0.49	0.46
	Observations	1340	561	779	692	238	454	648	323	325
Intensity of treatment	Average	3,83	0,00	6,47	5.17	0	7.85	2.23	0	4.36
	St. Dev.	4,54	0,00	4,21	4.89	0	3.9	3.47	0	3.78
	Observations	1349	565	784	697	241	456	652	324	328
Intensity of (compulsory) treatment	Average	2,41	0,00	4,07	2.8	0	4.26	1.94	0	3.79
	St. Dev.	3,26	0,00	3,35	3.37	0	3.32	3.08	0	3.39
	Observations	1349	565	784	697	241	456	652	324	328
Female	Average	0,49	0,48	0,49	0.49	0.44	0.52	0.48	0.52	0.45
	St. Dev.	0,50	0,50	0,50	0.5	0.49	0.49	0.5	0.48	0.49
	Observations	1349	565	784	697	241	456	652	324	328

Table 2: Reform and Turnout*Dependent variable: Turnout*

	<i>OLS</i> [1]	<i>Logit</i> [2]	<i>OLS</i> [3]	<i>Logit</i> [4]
intensity	.056*** (.018)	.045*** (.015)	.057*** (.018)	.045*** (.015)
non catalan origin			-.113* (.057)	-.142* (.073)
cat origin mixed family			-.084** (.039)	-.095*** (.045)
cat origin non catalan family			-.1291*** (.038)	-.144*** (.043)
YEARS OF EDUCATION	YES	YES	YES	YES
YEARS OF BIRTH	YES	YES	YES	YES
PROVINCES	NO	NO	YES	YES
No. obs.	1248	1248	1248	1248
Rsquared	.078		.099	
Pseudo-Rsq		.071		.093

* Significant at the 10%, ** significant at the 5%, *** significant at the 1%. Robust standard errors are reported between parenthesis and are clustered at the cohort-years of education level. Individual controls include a dummy variable for gender, for individuals not born in Catalonia, individuals born in Catalonia but with non-catalan parents and individuals born in Catalonia with mixed parents. Marginal effects evaluated at the average are reported for the logit regressions.

Table 3: Reform and Ethnic voting (1)

Dependent variable: Probability of ethnic voting (among voters)

	CIU+ERC+IC	CIU+ERC+IC	CIU+ERC	CIU+ERC	CIU	CIU	CIU+ERC+IC	CIU+ERC+IC	CIU+ERC	CIU+ERC	CIU	CIU
	OLS	Logit	OLS	Logit	OLS	Logit	OLS	Logit	OLS	Logit	OLS	Logit
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
intensity	.041*** (.018)	.046*** (.017)	.047** (.020)	.049** (.087)	.049*** (.020)	.053*** (.022)	.040** (.016)	.051*** (.017)	.046** (.019)	.057** (.023)	.049** (.020)	.052** (.022)
non catalan origin							-.359*** (.072)	-.408*** (.074)	-.399*** (.072)	-.423*** (.063)	-.169** (.075)	-.171** (.070)
cat origin mixed family							-.135*** (.042)	-.179*** (.054)	-.183*** (.021)	-.220*** (.053)	-.044 (.061)	-.046 (.061)
cat origin non catalan family							-.382*** (.045)	-.429*** (.051)	-.412*** (.051)	-.442*** (.050)	-.156*** (.048)	-.160*** (.047)
YEARS OF EDUCATION	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEARS OF BIRTH	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
PROVINCES	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES
No. obs.	941	941	941	941	941	941	941	941	941	941	941	941
Rsquared	.057		.04		.054		.194		.194		.084	
Pseudo-Rsq		.046		.030		.042		.161		.153		.065

* Significant at the 10%, ** significant at the 5%, *** significant at the 1%. Robust standard errors are reported between parenthesis and are clustered at the cohort-years of education level. Individual controls include a dummy variable for gender, for individuals not born in Catalonia, individuals born in Catalonia but with non-catalan parents and individuals born in Catalonia with mixed parents. Marginal effects evaluated at the average are reported for the logit regressions.

Table 4: Reform and Ethnic voting (2)

Dependent variable: Probability of ethnic voting (among all citizens)

	CIU+ERC+IC	CIU+ERC+IC	CIU+ERC	CIU+ERC	CIU	CIU	CIU+ERC+IC	CIU+ERC+IC	CIU+ERC	CIU+ERC	CIU	CIU
	OLS	Logit	OLS	Logit	OLS	Logit	OLS	Logit	OLS	Logit	OLS	Logit
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
intensity	.049*** (.015)	.057*** (.017)	.053*** (.017)	.059*** (.019)	.048*** (.016)	.053*** (.091)	.054*** (.014)	.068*** (.018)	.057*** (.016)	.071*** (.020)	.050*** (.016)	.055** (.019)
non catalan origin							-.363*** (.067)	-.347*** (.053)	-.381*** (.064)	-.335*** (.045)	-.182*** (.063)	-.158*** (.049)
cat origin mixed family							-.176*** (.043)	-.190*** (.044)	-.207*** (.045)	-.204*** (.040)	-.077 (.051)	-.073 (.045)
cat origin non catalan family							-.368*** (.038)	-.379*** (.035)	-.377*** (.043)	-.370*** (.037)	-.164*** (.041)	-.157*** (.035)
YEARS OF EDUCATION	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEARS OF BIRTH	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
PROVINCES	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES
No. obs.	1248	1248	1248	1248	1248	1248	1248	1248	1248	1248	1248	1248
Rsquared	.062		.053		.055		.174		.176		.087	
Pseudo-Rsq		.047		.004		.048		.134		.137		.075

* Significant at the 10%, ** significant at the 5%, *** significant at the 1%. Robust standard errors are reported between parenthesis and are clustered at the cohort-years of education level. Individual controls include a dummy variable for gender, for individuals not born in Catalonia, individuals born in Catalonia but with non-catalan parents and individuals born in Catalonia with mixed parents. Marginal effects evaluated at the average are reported for the logit regressions.

Table 5: Reform and voting patterns

Dependent variable: Voting choice (marginal effects)

	Abstain MLOGIT [1]	Ethnicvoting MLOGIT [2]	Non Ethnicvoting MLOGIT [3]	Abstain MPROBIT [4]	Ethnicvoting MPROBIT [5]	Non Ethnicvoting MPROBIT [6]	Abstain ASMPROBIT [7]	Ethnicvoting ASMPROBIT [8]	Non Ethnicvoting ASMPROBIT [9]
intensity	-.024* (.014)	.065*** (.017)	-.042** (.017)	-.022 (.014)	.065*** (.017)	-.043** (.017)	-0,022 (0.031)	.064*** (.021)	-.042* (.022)
YEARS OF EDUCATION	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEARS OF BIRTH	YES	YES	YES	YES	YES	YES	YES	YES	YES
PROVINCES	YES	YES	YES	YES	YES	YES	YES	YES	YES
No. obs.	1248			1248			1248		

* Significant at the 10%, ** significant at the 5%, *** significant at the 1%. Robust standard errors are reported between parenthesis and are clustered at the cohort-years of education level. Individual controls include a dummy variable for gender, for individuals not born in Catalonia, individuals born in Catalonia but with non-catalan parents and individuals born in Catalonia with mixed parents. Each group of three columns corresponds to a regression.

Table 6: The role of individual origin

<i>Dependent variable:</i>	<i>voting</i>		<i>ethnic voting (share)</i>		<i>ethnic voting (all)</i>	
	<i>OLS</i>	<i>Logit (coeff)</i>	<i>OLS</i>	<i>Logit (coeff)</i>	<i>OLS</i>	<i>Logit (coeff)</i>
	[1]	[2]	[1]	[2]	[1]	[2]
intensity*non cat.origin	.069*** (.022)	.355*** (.111)	.045* (.024)	.252** (.114)	.066** (.020)	.325*** (.100)
intensity*cat.family	.056*** (.018)	.268*** (.094)	.042** (.016)	.265*** (.084)	.054*** (.014)	.274*** (.071)
intensity*mixed family	.070*** (.018)	.366*** (.095)	.026 (.016)	.169** (.085)	.052*** (.016)	.263*** (.078)
intensity*non cat.family	.047** (.021)	.247** (.104)	.043** (.018)	.246*** (.090)	.054*** (.016)	.261*** (.081)
YEARS OF EDUCATION	YES	YES	YES	YES	YES	YES
YEARS OF BIRTH	YES	YES	YES	YES	YES	YES
PROVINCES	YES	YES	YES	YES	YES	YES
No. obs.	1248	1248	941	941	1248	1248
Rsquared	.107		.197		.175	
Pseudo Rsquared		.100		.165		.135

* Significant at the 10%, ** significant at the 5%, *** significant at the 1%. Robust standard errors are reported between parenthesis and are clustered at the cohort-years of education level. Individual controls include a dummy variable for gender, for individuals not born in Catalonia, individuals born in Catalonia but with non-catalan parents and individuals born in Catalonia with mixed parents.

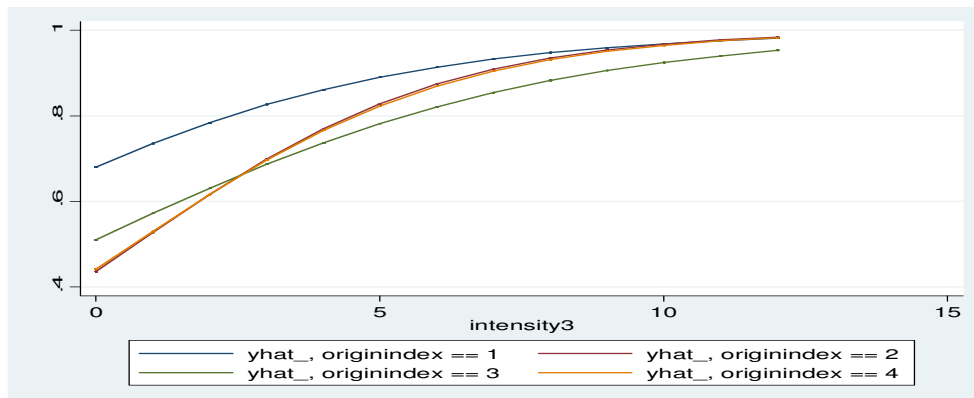


Figure 5: Changes in the probability of voting by intensity and origin: 1=catalan origin with catalan parents, 2=catalan origin with mixed parents, 3=catalan origin with parents that are not catalan, 4= not catalan origin

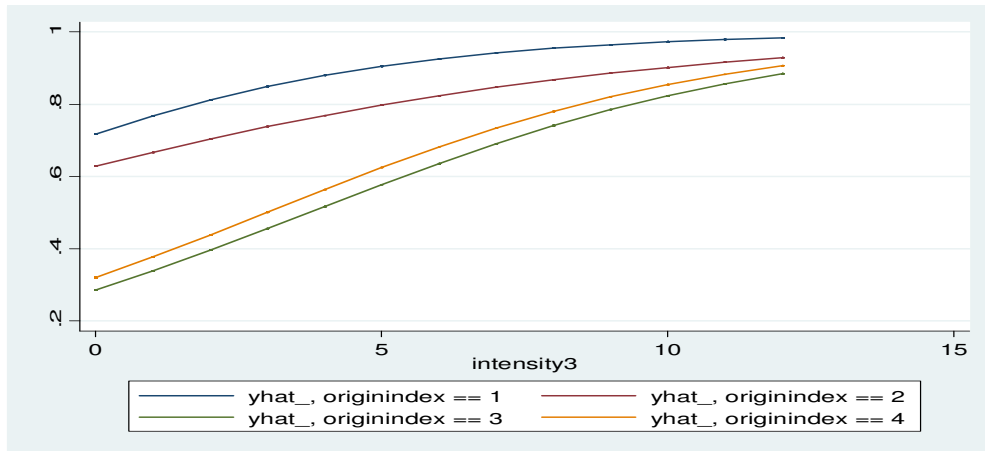


Figure 6: Changes in the probability of voting for an ethnic party (among voters) by intensity and origin: 1=catalan origin with catalan parents, 2=catalan origin with mixed parents, 3=catalan origin with parents that are not catalan, 4= not catalan origin

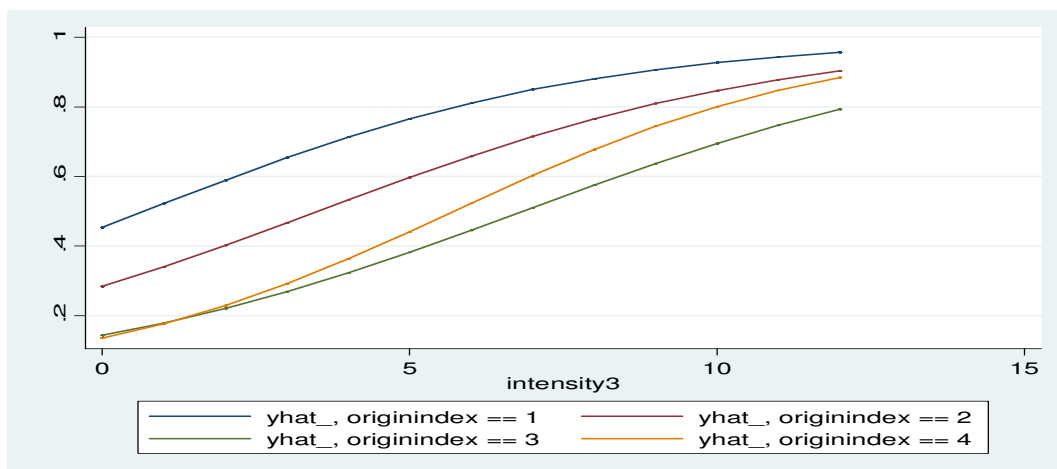


Figure 7: Changes in the probability of voting for an ethnic party (among all) by intensity and origin: 1=catalan origin with catalan parents, 2=catalan origin with mixed parents, 3=catalan origin with parents that are not catalan, 4= not catalan origin

Table 7: Robustness checks

PANEL A

	1934-1965 <i>voting</i>	1934-1965 <i>voting</i>	1934-1965 <i>ethnic voting</i> <i>(voters)</i>	1934-1965 <i>ethnic voting</i> <i>(voters)</i>	1934-1965 <i>ethnic voting</i> <i>(all)</i>	1934-1965 <i>ethnic voting</i> <i>(all)</i>	1921-1980 <i>voting</i>	1921-1980 <i>voting</i>	1921-1980 <i>ethnic voting</i> <i>(voters)</i>	1921-1980 <i>ethnic voting</i> <i>(voters)</i>	1921-1980 <i>ethnic voting</i> <i>(all)</i>	1921-1980 <i>ethnic voting</i> <i>(all)</i>
	<i>OLS</i>	<i>Logit</i>	<i>OLS</i>	<i>Logit</i>	<i>OLS</i>	<i>Logit</i>	<i>OLS</i>	<i>Logit</i>	<i>OLS</i>	<i>Logit</i>	<i>OLS</i>	<i>Logit</i>
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
intensity							.049** (.020)	.032*** (.017)	.044** (.021)	.049** (.023)	.056*** (.019)	.066*** (.024)
pseudo-intensity	-.001 (.008)	-.013 (.092)	.017 (.013)	.019 (.013)	.016 (.012)	.018 (.013)	.002 (.011)	-0.00 (.014)	-.012 (.018)	-.013 (.020)	-.011 (.017)	-.013 (.021)
No. obs.	862	862	734	734	862	862	1674	1674	1386	1386	1674	1674
Rsquared	.337		.171		.163		.107		.178		.179	
Pseudo-Rsq		.097		.148		.130		.113		.153		.141

* Significant at the 10%, ** significant at the 5%, *** significant at the 1%. Robust standard errors are reported between parenthesis and are clustered at the cohort-years of education level. Individual controls include a dummy variable for gender, for individuals not born in Catalonia, individuals born in Catalonia but with non-catalan parents and individuals born in Catalonia with mixed parents. Marginal effects evaluated at the average are reported for the logit regressions. All regressions include year of birth, province and years of education dummies.